

## TWO NEW SPECIES OF THE GENUS CROSSODONTHINA (COLLEMBOLA, NEANURIDAE) FROM CHINA

XIONG Yan<sup>1, 2</sup>, CHEN Li-Qiao<sup>1</sup>, YIN Wen-Ying<sup>3</sup>\*

1. School of Life Science, East China Normal University, Shanghai 200062, China

2. Department of Biology, Hainan Normal University, Haikou 571158, China

3. Institute of Plant Physiology & Ecology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai 200032, China

**Abstract** In the present study, two new species of Collembola, *Crossodonthina hainana* sp. nov. and *Crossodonthina tiantongshana* sp. nov. were described respectively from Hainan and Zhejiang Provinces, China. The new species *Crossodonthina hainana* is easily discriminated from all known species of *Crossodonthina* by having 2 + 2 eyes and furcular hump with 6 setae. *C. tiantongshana* is similar to *C. tridentiens* Yue & Yin, 1999 in some aspects, but differs from the latter in having peculiar mandibles and maxillae.

**Key words** Collembola, Neanuridae, *Crossodonthina*, new species, China.

So far, seven species of the genus *Crossodonthina* have been described in Asia. Three of them were reported from China, including *alatoserrata* Yosii, 1965, *formosana* Yosii, 1965 and *tridentiens* Yue & Yin, 1999. In this paper, two new species from Hainan and Zhejiang Provinces, China, were described. Type specimens are deposited in the collection of Institute of Plant Physiology & Ecology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences.

### 1 *Crossodonthina hainana* sp. nov. (Figs. 1-12)

Body length up to 2.0 mm.

**Colour.** Red in living and wholly white in alcohol.

**Head.** Antennae shorter than head. Ant. & dorsally ankylosed. Ant. bearing 3 apical bulbs and 8 curved blunt sensory setae. Ant. -organ as a pair of short rods in groove and 1 guard seta on ventral side (Fig. 4). Eyes 2 + 2, unpigmented and apart from each other (Fig. 7). Mandible with 2 incurved and feathered rami. Both rami fringed heavily from base to end on inner side; shorter one with three prominent teeth near base (Fig. 3). Maxilla almost needle-shaped, bifurcate; lacinia with 2 teeth and 1 thin lamella. Galea also bifurcate, inner branch as smooth lamella, outer one with 2 teeth and 1 lamella on same side (Fig. 8).

**Thorax.** Unguis dorsally carinate with 1 inner tooth, basally granular and inner side with many transverse striae. Unguiculus absent (Fig. 9).

**Abdomen.** Ventral tube with 4 + 4 setae (Fig. 12). Furcular hump with 6 setae (Fig. 5). Male genital plate having 34 setae (Fig. 10). Female genital aperture surrounded 22 setae (Fig. 11).

**Tubercles and chaetotaxy.** Body tubercles spherical. Dorsal ones not reduced. Abd. V with 2 + 2 tubercles, lateral one with 1 sensory seta. A pair of tubercles on abd. , spherical, apart from each other. Body tubercle distribution and dorsal chaetotaxy shown in Figs. 1-2.

**Body macrochaetae** long, uncoloured, smooth with rounded apex (Fig. 6). Common setae a little shorter, pointed and smooth. Microsetae about one-sixth of macrochaetae in length. Sensory setae feeble and smooth. The four types of setae expressed as: , , ....., 1, 2, 3 ....., i, ii, iii ....., and s. s. Dorsal chaetotaxy as: th. : ..... (1 + ) ..... ( ); th. : i (1 + ) ..... (i + 1 + + s) ..... (1 + + s) ..... (2 + ) ; abd. - : (1 + ) ..... (i + 1 + + s) ..... (1 + ) ..... (1 + ) ; abd. : (1 + ) ..... (i + + s) ..... (i + 1 + ) ..... (1 + ) ; abd. : (i + 1 + ) ..... (i + 1 + + s) ; abd. : ( ).

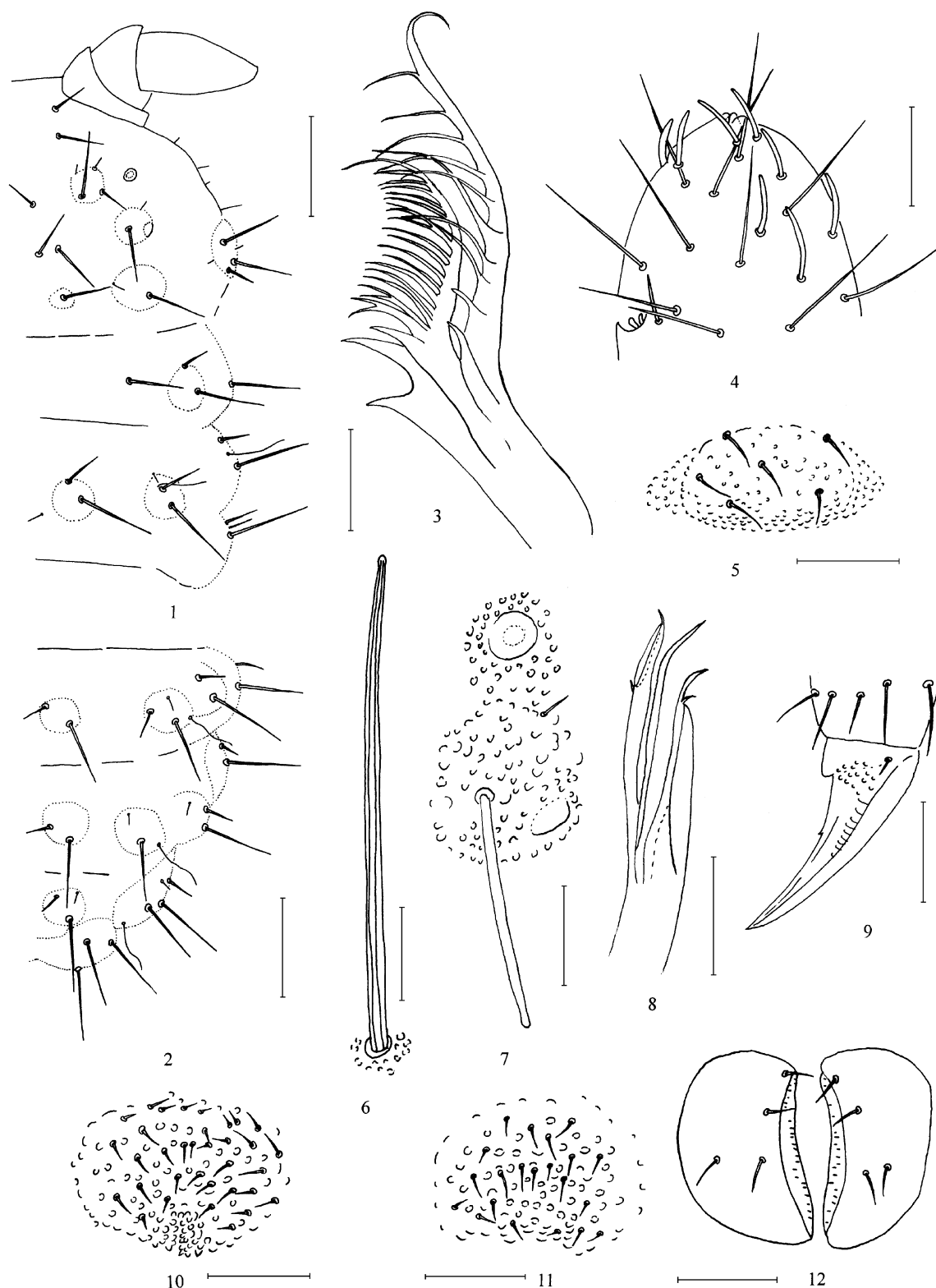
**Holotype** , Dongzhaigang Mangrove Natural Reserve (19°55' N, 110°34' E), Hainan Province, 23 Jan. 2004, collected by XIONG Yan. Paratypes: 6 , 6 , same data as holotype.

**Remarks.** The new species is distinctly separable from all known species of the genus in possessing 2 + 2 eyes and 6 setae on furcular hump.

The project was supported by the National Natural Science Foundation of China (30130040, 30370169).

\* Corresponding author; E-mail: wyyin@sibs.ac.cn; Telephone and Fax numbers: 021-54924180

Received 23 July 2004, accepted 8 Mar. 2005.



Figs. 1-12. *Crossodonthina hainana* sp. nov. 1. Head to th. 2. Abd. 3. Mandible. 4. Ant. (dorsal view). 5. Furcular hump. 6. Macrochaeta. 7. Eyes and tubercles. 8. Maxilla. 9. Hind claw. 10. Male genital plate. 11. Female genital aperture. 12. Ventral tube. Scale bars: 1-2 = 240  $\mu\text{m}$ ; 3, 8, 12 = 20  $\mu\text{m}$ ; 6 = 70  $\mu\text{m}$ ; 4-5, 7, 9-11 = 40  $\mu\text{m}$ .

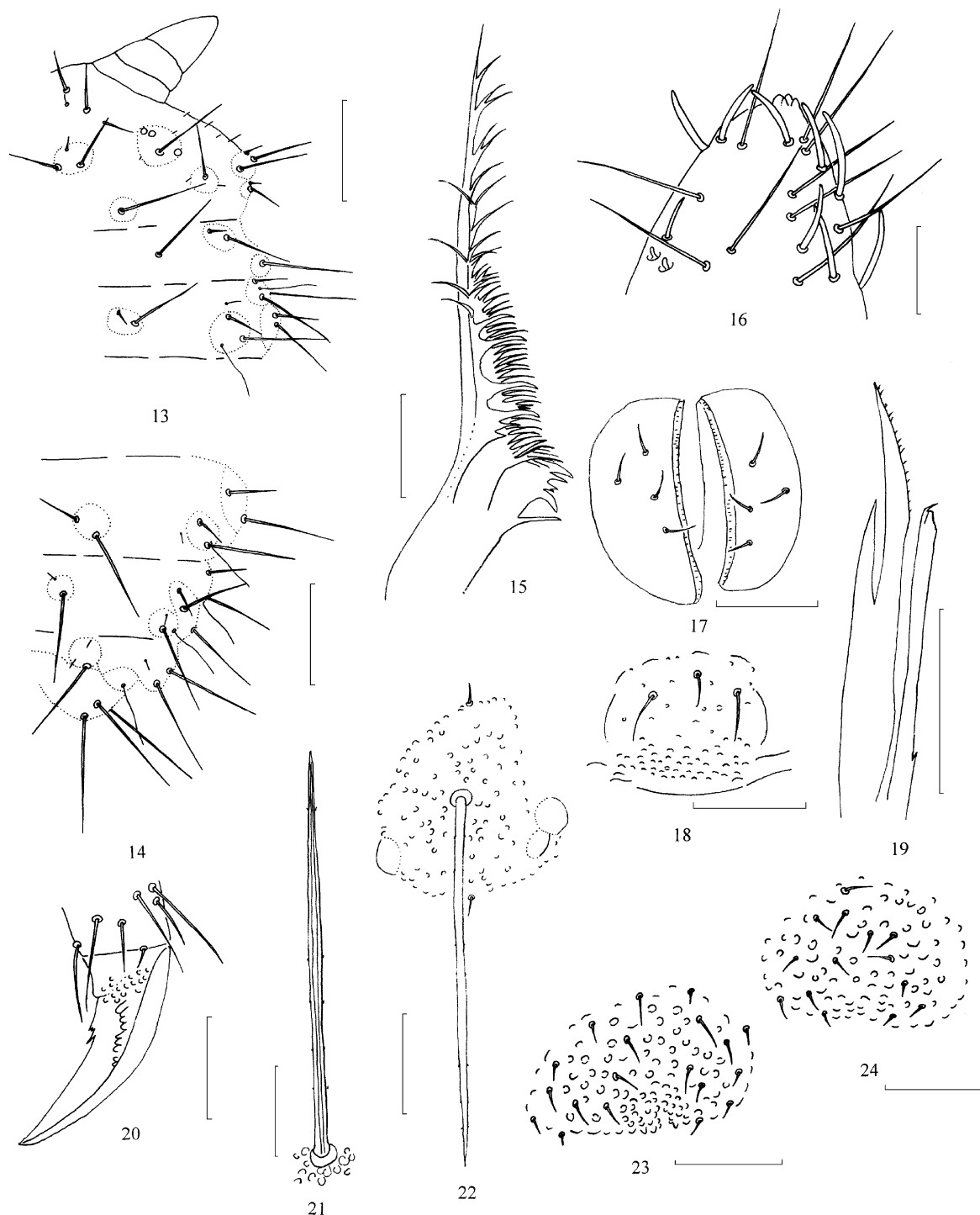
Etymology. The new species is named after the locality of types.

2 *Crossodonthina tiantongshana* sp. nov.

(Figs. 13-24)

Body length up to 3.0 mm.

Colour. Bright red in living and white in alcohol.



Figs. 13-24. *Crossodonhina tiantonshana* sp. nov. 13. Head to th. 14. Abd. 15. Mandible. 16. Ant. (dorsal view). 17. Ventral tube. 18. Furcular hump. 19. Maxilla. 20. Hind claw. 21. Macrochaeta. 22. Eyes and tubercle. 23. Male genital plate. 24. Female genital aperture. Scale bars: 13-14 = 400  $\mu$ m; 15, 22 = 40  $\mu$ m; 16-17, 20 = 50  $\mu$ m; 18-19 = 25  $\mu$ m; 21, 23-24 = 60  $\mu$ m.

Head. Antennae shorter than head. Ant. and dorsally ankylosed. Ant. bearing 3 prominent apical bulbs, 8 long curved blunt sensory setae, and some erect setae. Sensory organ of Ant. composed of 2 small rods in 2 separate grooves and 1 guard seta (Fig. 16). Eyes 3 + 3, lightly pigmented, 2 anterior

and 1 posterior on tubercle, anterior 2 touching each other (Fig. 22). Mandible strongly developed, composed of 2 long feathered rami, and 1 lamella. Lamella with five teeth, mid one bifurcate, basal one much thinner and longer than others (Fig. 15). Maxilla almost styliform, lacinia with 1 apical tooth and 1 tiny

basal tooth. Galea bifurcate, inner branch finely ciliated on one side, outer one styliform (Fig. 19).

Thorax. Unguis dorsally carinate and with 2 minute and 1 large inner teeth. Inner side of unguis basally granulated and with many transverse striae. Unguiculus absent (Fig. 20).

Abdomen. Ventral tube with 4 + 4 setae (Fig. 17). Furcular hump low, rounded, with 3 setae (Fig. 18). Male genital plate having 19 setae (Fig. 23). Female genital aperture surrounded by 14 setae (Fig. 24).

Tubercles and chaetotaxy. Dorsal tubercles of body not reduced. Abd. with 3 + 3 tubercles. Dorsal tubercles round, with 2 microsetae and 1 macrochaeta. Subdorsal tubercles hemispherical, with 1 sensory seta. Tubercles of abd. spherical, a little apart from each other. Tubercle distribution and dorsal chaetotaxy shown in Figs. 13-14.

Body macrochaetae long, almost straight and slightly serrated on whole length, ending in a point apex (Fig. 21). Microsetae about one-sixth of macrochaetae in length. Dorsal chaetotaxy as: th. : ..... (i + ) ..... ( ); th. , : (i + ) ..... i (1 + +s) ..... (1 + +s) ..... (1 + ); abd. - : (1 + ) ..... i (1 + +s) ..... (1 + ); abd. : (i + ) ..... (i + I + s) ..... (1 + ) ..... (1 + +s); abd. V: (ii + ) ..... (s) ..... (i + ); abd. : ( ).

Holotype, Mt. Tiantong (29°48' N, 121°47' E, alt. 350 m), Zhejiang Province, 23 Sep. 2003, collected by XIONG Yan. Paratypes 7, 1, same data as holotype.

Remarks. The new species is similar to *Crossodonthina tridentiens* from Shanghai. The differences be-

tween them are as follows Table 1.

Table 1. Comparison between *Crossodonthina tiantongshana* sp. nov. and *Crossodonthina tridentiens* Yue & Yin, 1999.

Characters	<i>C. tridentiens</i> Yue & Yin, 1999	<i>C. tiantongshana</i> sp. nov.
Mandible		
Rami	3 ciliate	2 feathered
Lamella teeth	3	5, basal teeth thin and long
Maxillar lacinia		
Apical teeth	2	1
Basal tooth	0	1
Unguis inner teeth	1, large	1 large and 2 minute
Abd. V tubercles	2 + 2	3 + 3

Etymology. The new species is named after the locality of types.

Acknowledgments We owe our very cordial thanks to Mr. XIE Rong-Dong for his help in our taxonomic work. Our thanks are given to Mr. YANG Yi-Ming, WEI Qing, PENG Shi-Ming and Mrs. XIA Yun-Fan for their useful help in our work. We received invaluable support and assistance for this research from Tiantong Ecological Experimental Station, Institute of Environmental Science, East China Normal University.

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中国颚毛属二新种 (弹尾目, 疣科)

熊燕<sup>1,2</sup> 陈立侨<sup>1</sup> 尹文英<sup>3</sup>

- 1. 华东师范大学生命科学学院 上海 200062
- 2. 海南师范学院生物系 海口 571158
- 3. 中国科学院上海生命科学研究院, 植物生理生态所 上海 200032

摘要 记述了采自海南和浙江省的弹尾目疣科颚毛属 *Crossodonthina* Yosii, 2 新种, 海南颚毛 *C. hainana* sp. nov. 和天童颚毛 *C. tiantongshana* sp. nov.。海南颚毛头部每侧有眼 2 个, 弹器痕上有 6 根刚毛, 非常容易与本属其它已知种类分开。天童颚毛与上海产的 *Crossodonthina tridentiens* Yue & Yin, 1999 相似, 两者的主要区别是: 新种

的上颚有两条长的、羽毛状分支和具 5 齿的片状突起, 且基部齿长而细; 下颚的内颚叶端部及近基部各有 1 齿; 新种腹部第 5 节有 3 + 3 个疣状突起, 而 *C. tridentiens* 有 2 + 2 个疣状突起; 新种的爪部内侧有 2 个小齿, 1 个大齿, *C. tridentiens* 只有 1 大齿。模式标本保存于上海生命科学研究院, 植物生理生态所昆虫标本馆。

关键词 弹尾目 (纲), 疣科, 颚毛属, 新种, 中国.

中图分类号 Q969. 14